

What is Claimed is:

1. A process for measuring a modified substrate, comprising:
 contacting a sensor surface selected from aminodextrane (AMD) sensor and diamino PEG 2000 sensor, to which a substance carrying a phosphotyrosine receptor binding site is coupled
 , in the presence of a surfactant substance,
 with a receptor which is an antibody capable of binding to the receptor binding site and
 with a modified substrate selected from phosphorylated Poly (Glu,Tyr) 4:1, phosphorylated Ac-Ile-Tyr-Gly-Glu-Phe-NH₂, and phosphorylated Lys-Lys-Lys-Gly-Pro-Trp-Leu-Glu-Glu-Glu-Glu-Ala-Tyr-Gly-Trp-Leu-Asp-Phe, to which the receptor can bind;
 determining by Reflectometric Interference Spectroscopy (RIfS) an altered layer thickness of the sensor surface;
 wherein the receptor can bind to only one receptor binding site, and wherein the receptor binding site of the substance which is bound to the sensor surface is identical to the receptor binding site on the modified substrate.

2. The process according to claim 1 wherein
 the modified substrate is a result of one enzymatic phosphorylation reaction which is to be measured which has preceded the measurement of the layer thickness;
 wherein the enzyme is a kinase selected from p60c-src-kinase and EGF-receptor-kinase (EGF-RK).

3. The process according to claim 1 wherein the modified substrate is phosphorylated Poly (Glu,Tyr) 4:1.

4. The process according to claim 1 wherein the modified substrate is phosphorylated Ac-Ile-Tyr-Gly-Glu-Phe-NH₂.

5. The process according to claim 1 wherein the modified substrate is phosphorylated Lys-Lys-Lys-Gly-Pro-Trp-Leu-Glu-Glu-Glu-Glu-Glu-Ala-Tyr-Gly-Trp-Leu-Asp-Phe.